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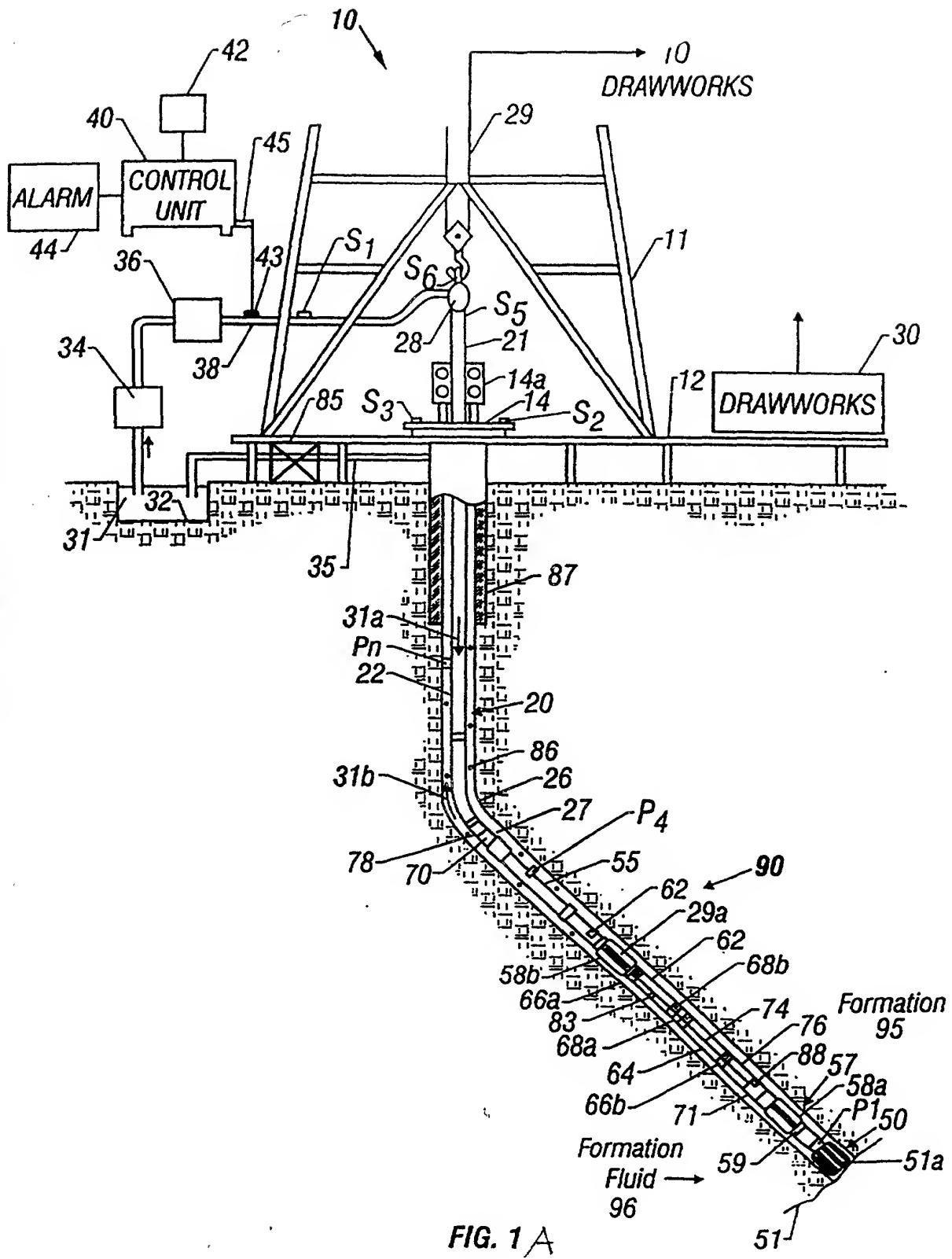
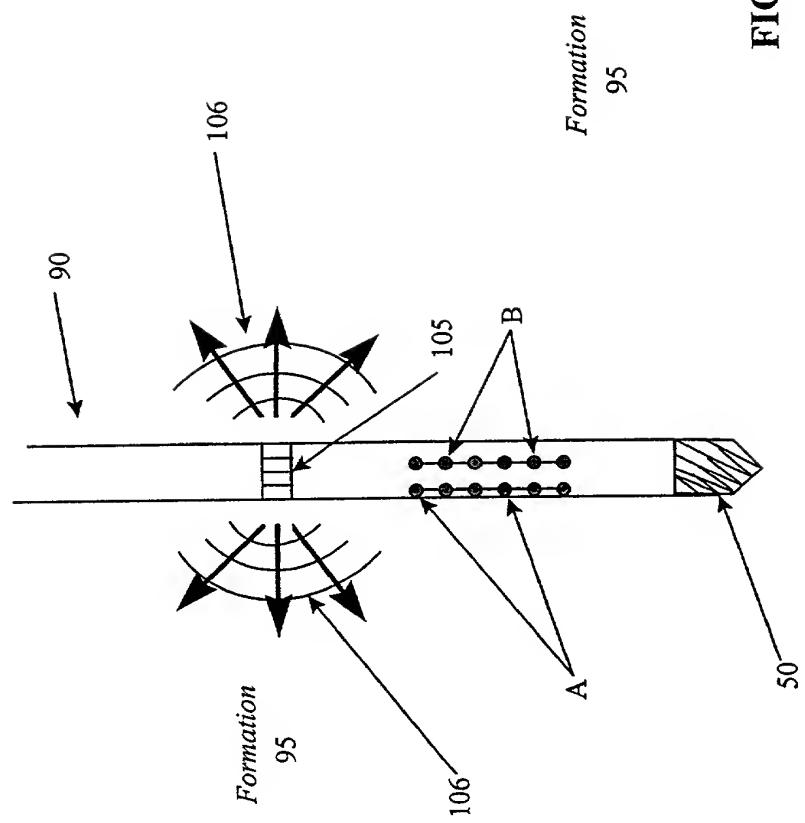


FIGURE 1B



Velocity Dispersion Curves for Formation and Drill-Collar Dipole Modes

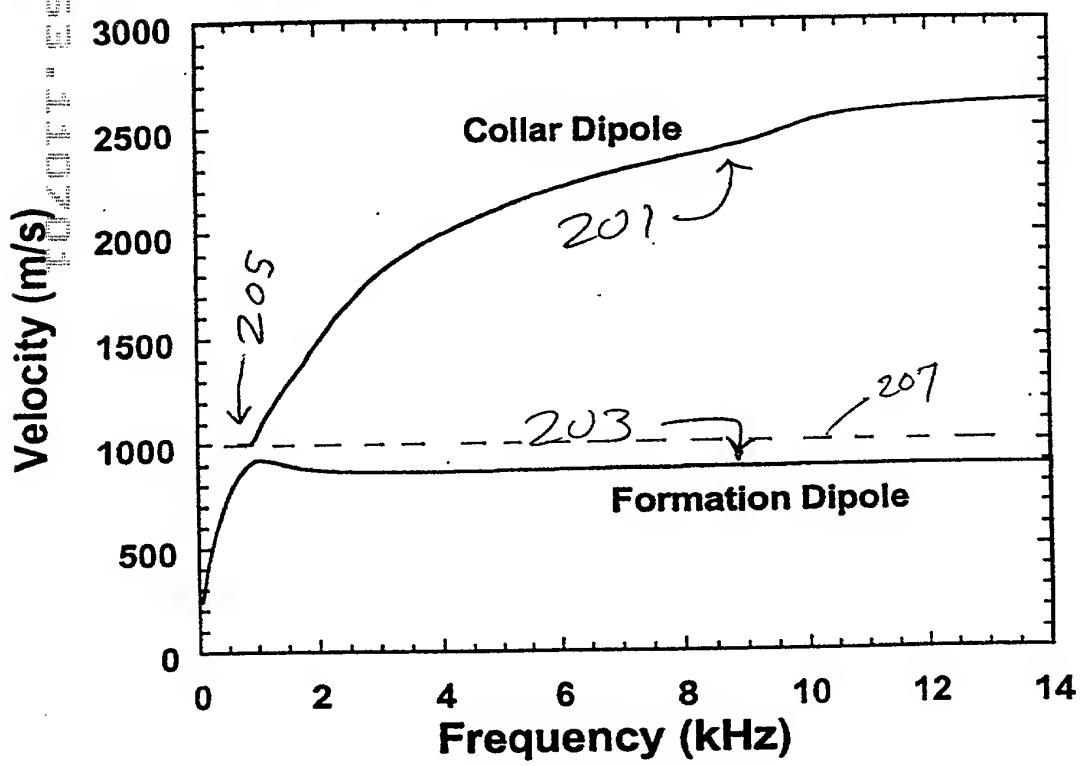


Figure 2

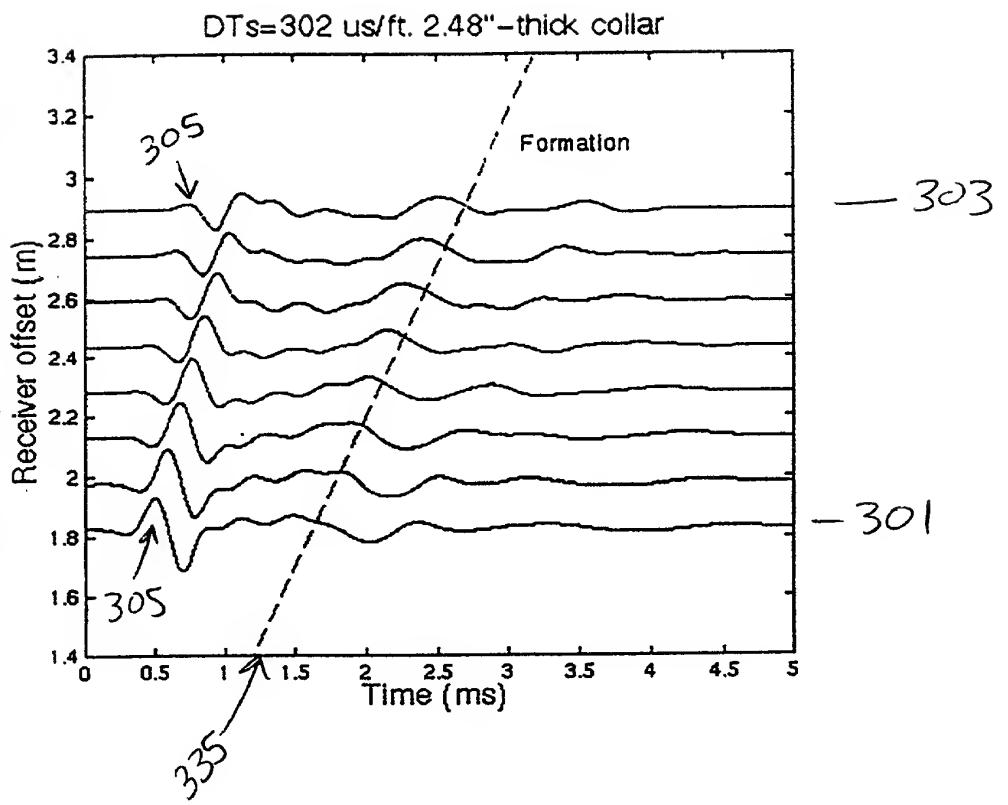


Figure 3
Dipole waveform in the presence of a drilling collar

$\cos 2\theta$ azimuthal distribution of a quadrupole wavefield

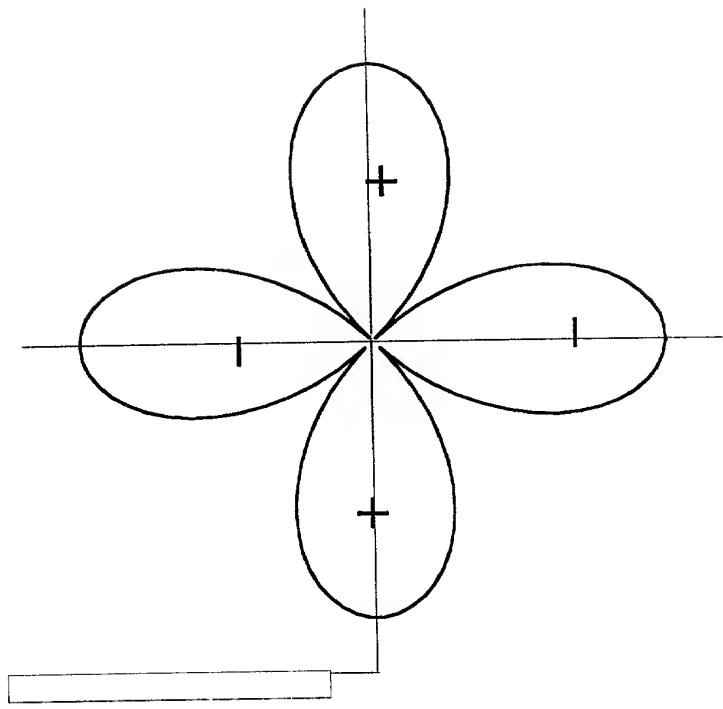


Fig-49

**Velocity Dispersion Curves for
Formation and Drill-Collar Quadupole Modes**

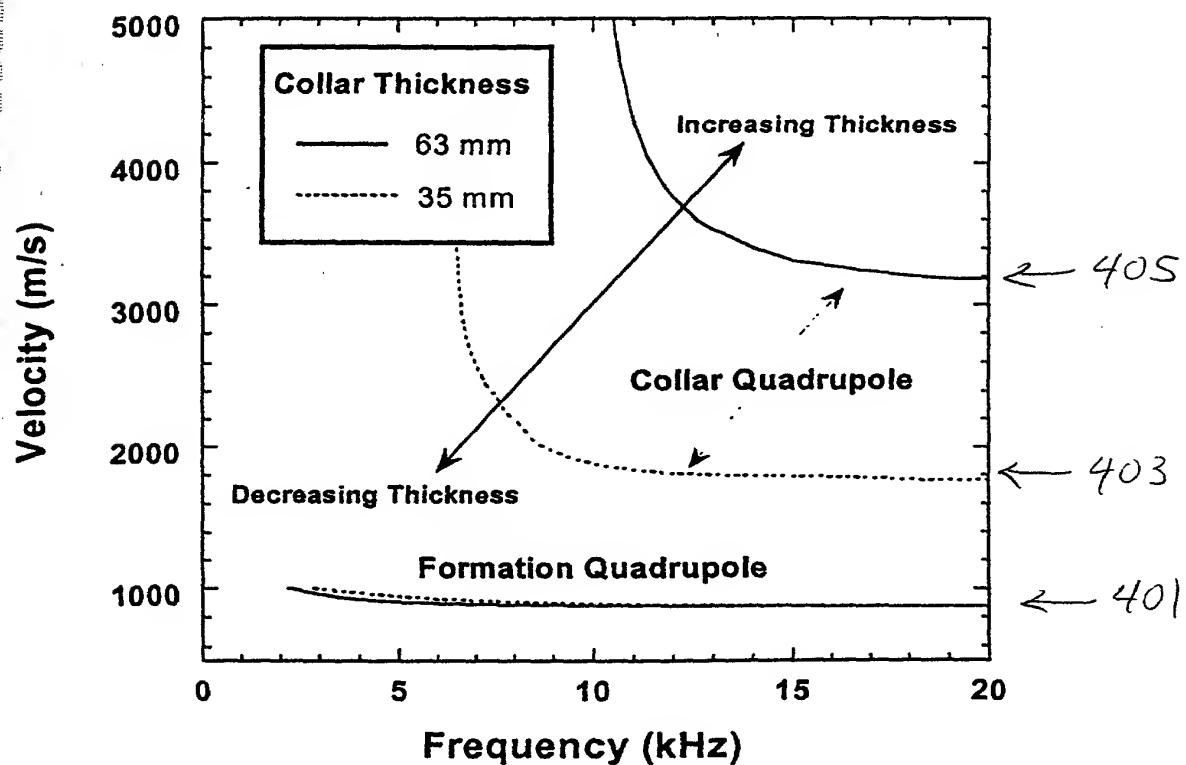


Figure 4 *b*

Figure 5A Wavefield snapshots

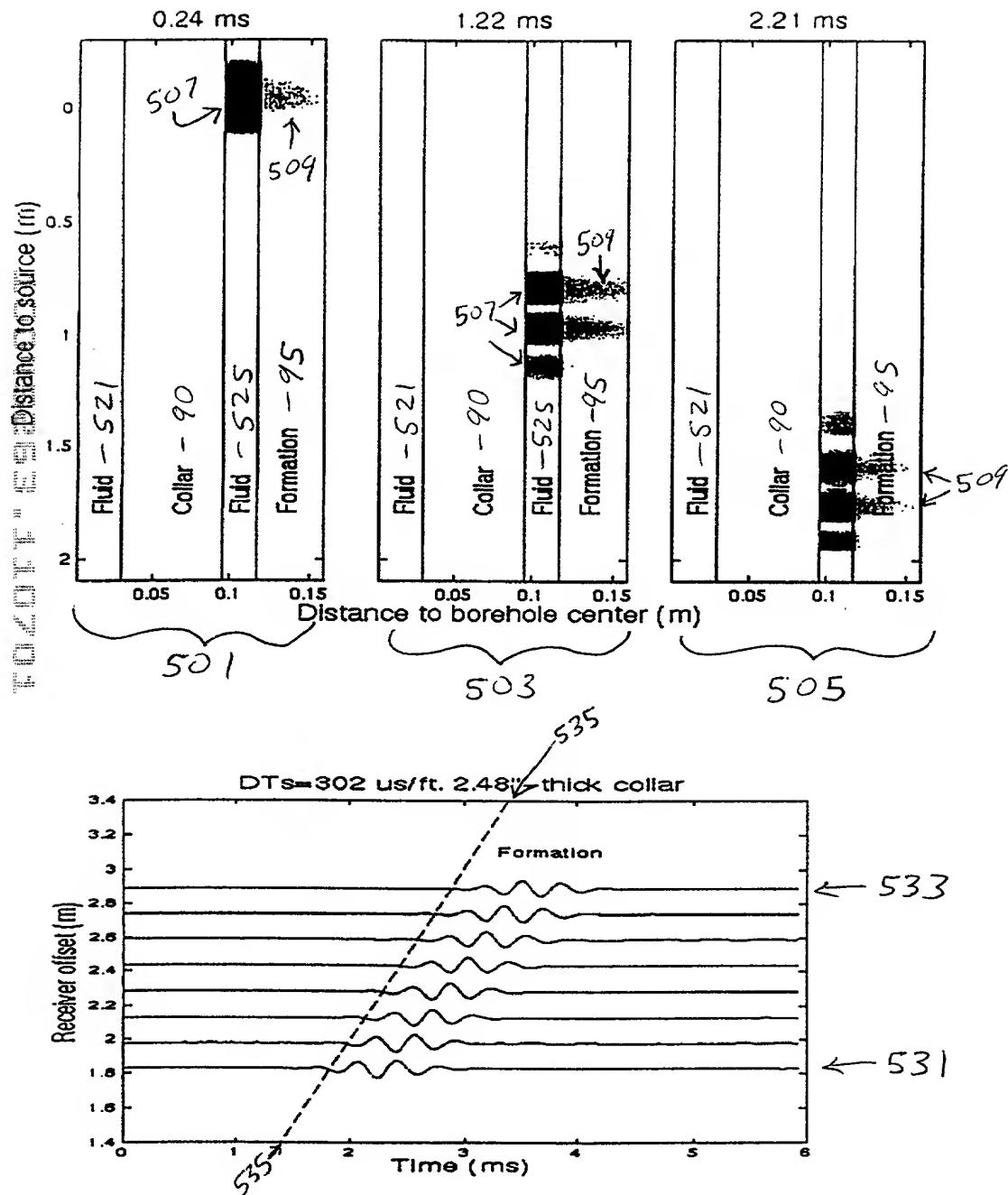


Figure 5B Quadrupole waveforms at various offsets

Figure 6A Wavefield snapshots, thin collar pipe

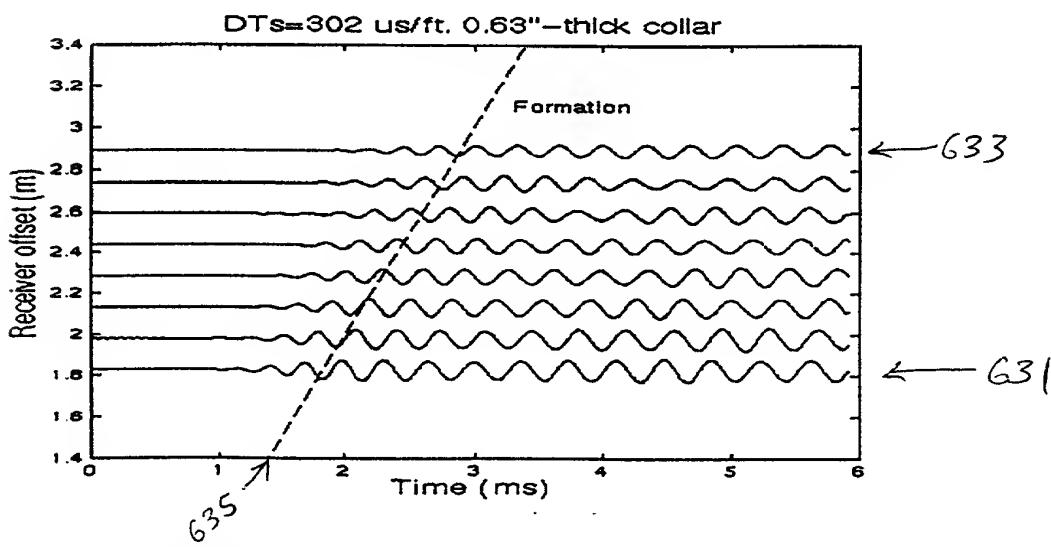
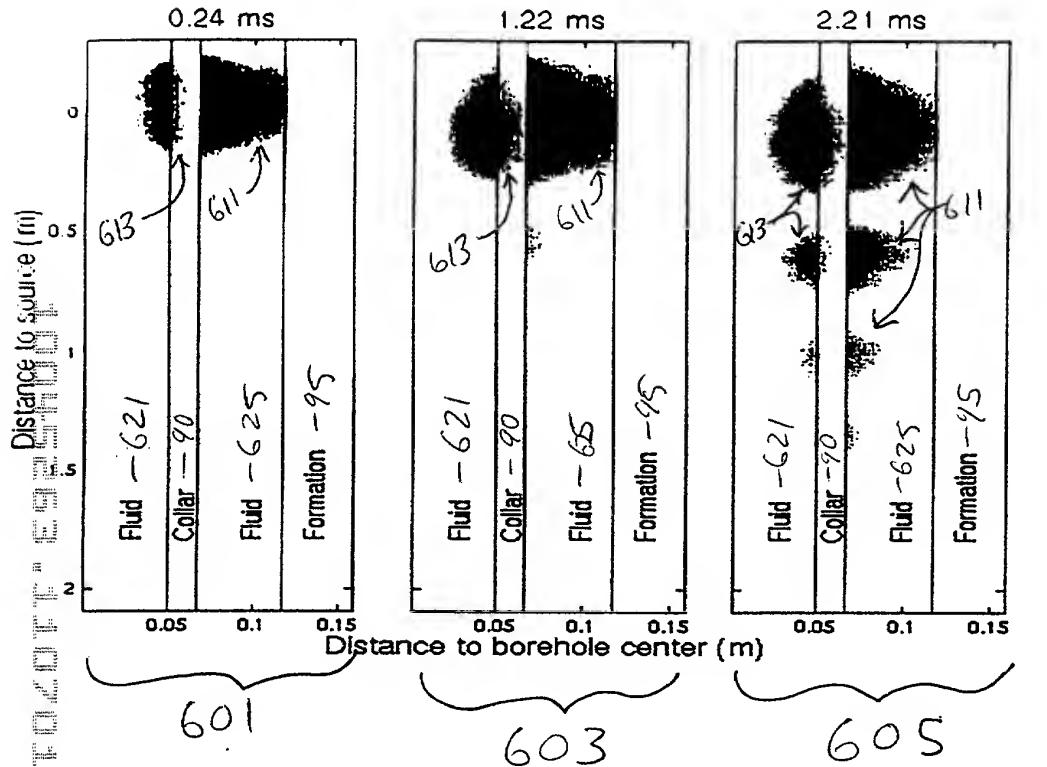


Figure 6B Quadrupole waveforms, thin collar pipe

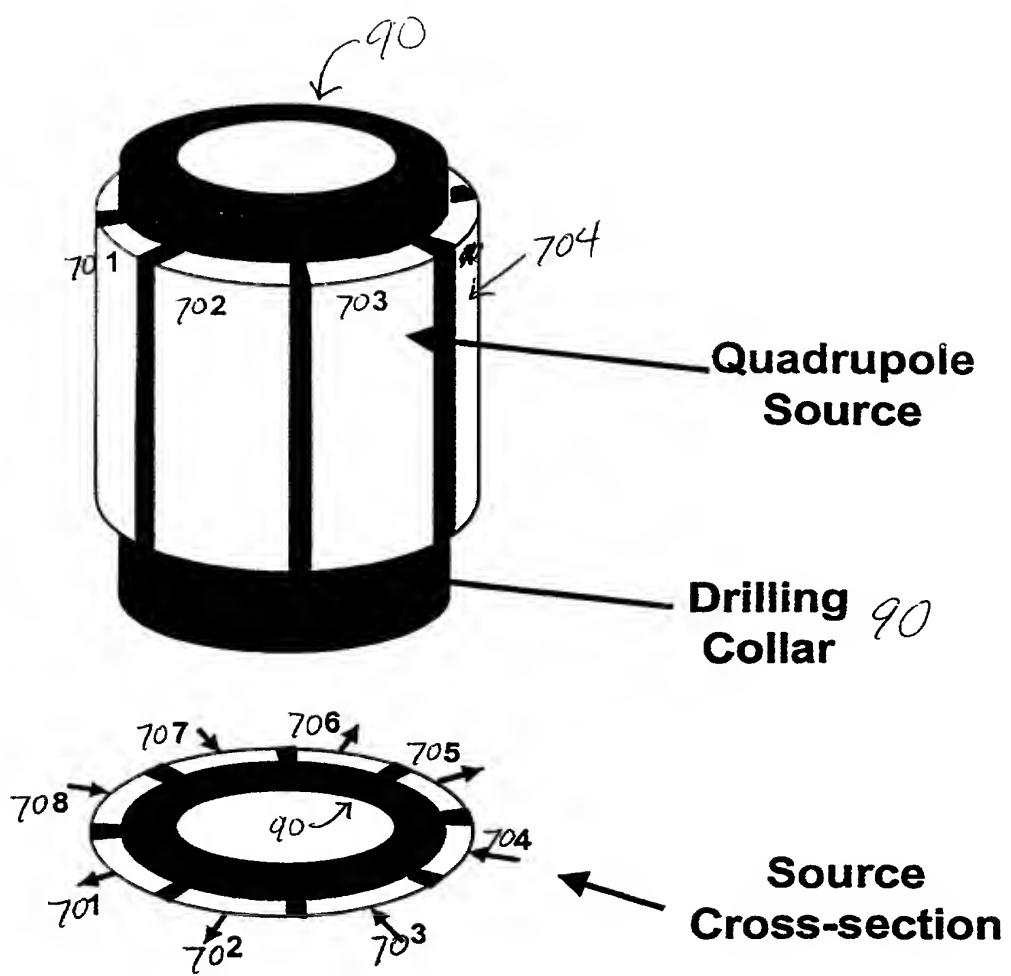


Figure 7

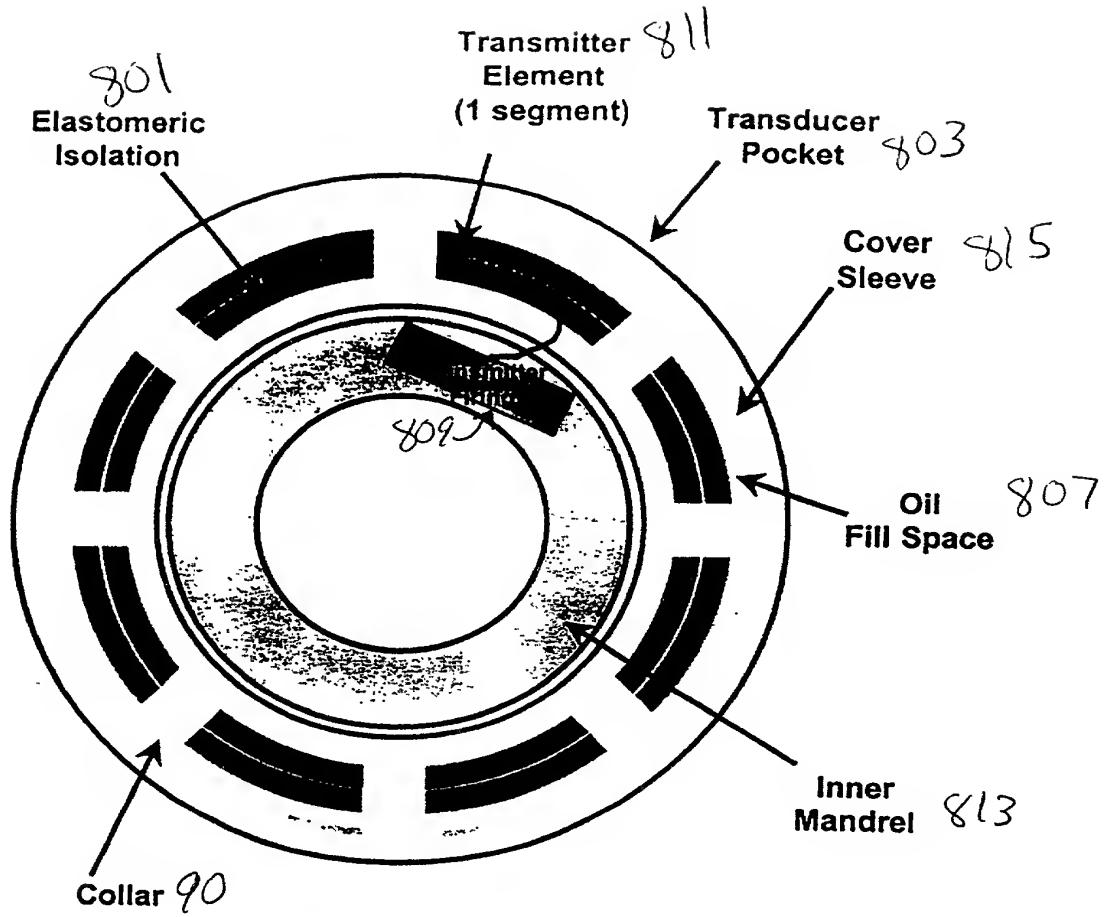


Figure 8 Segmented Ring Transmitter Example

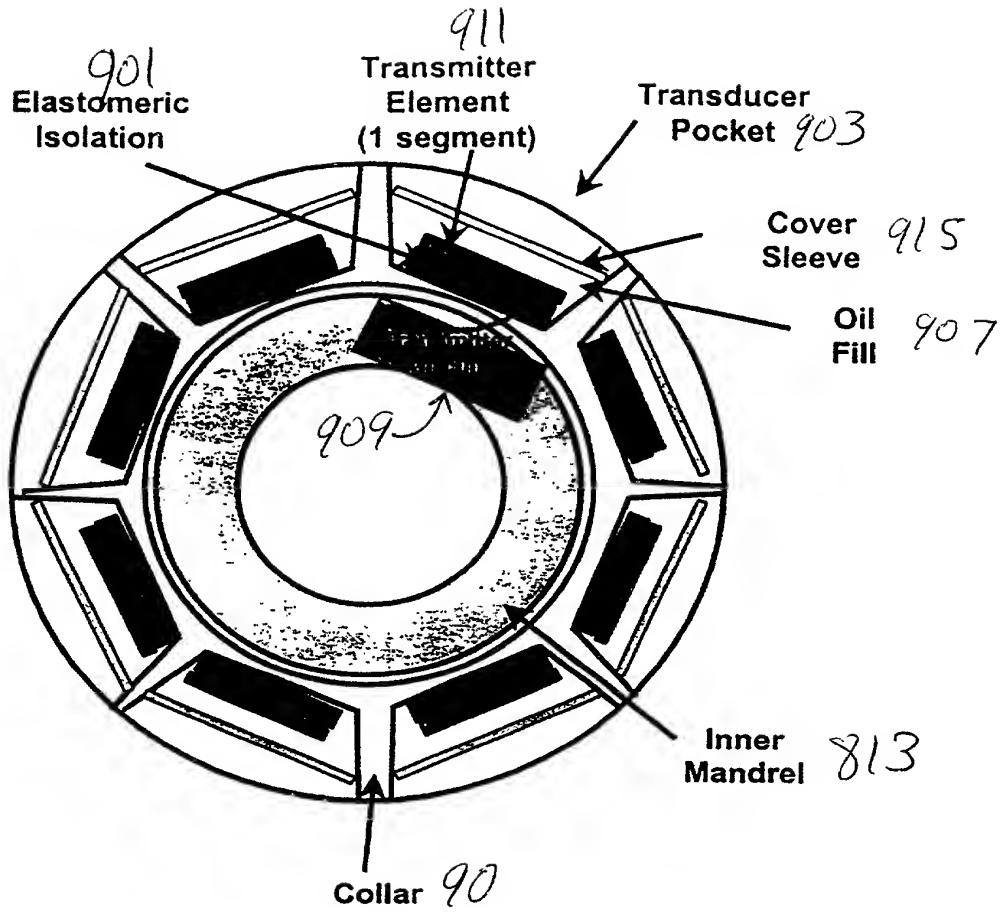


Figure 9 Individual Segmented Transmitter Example

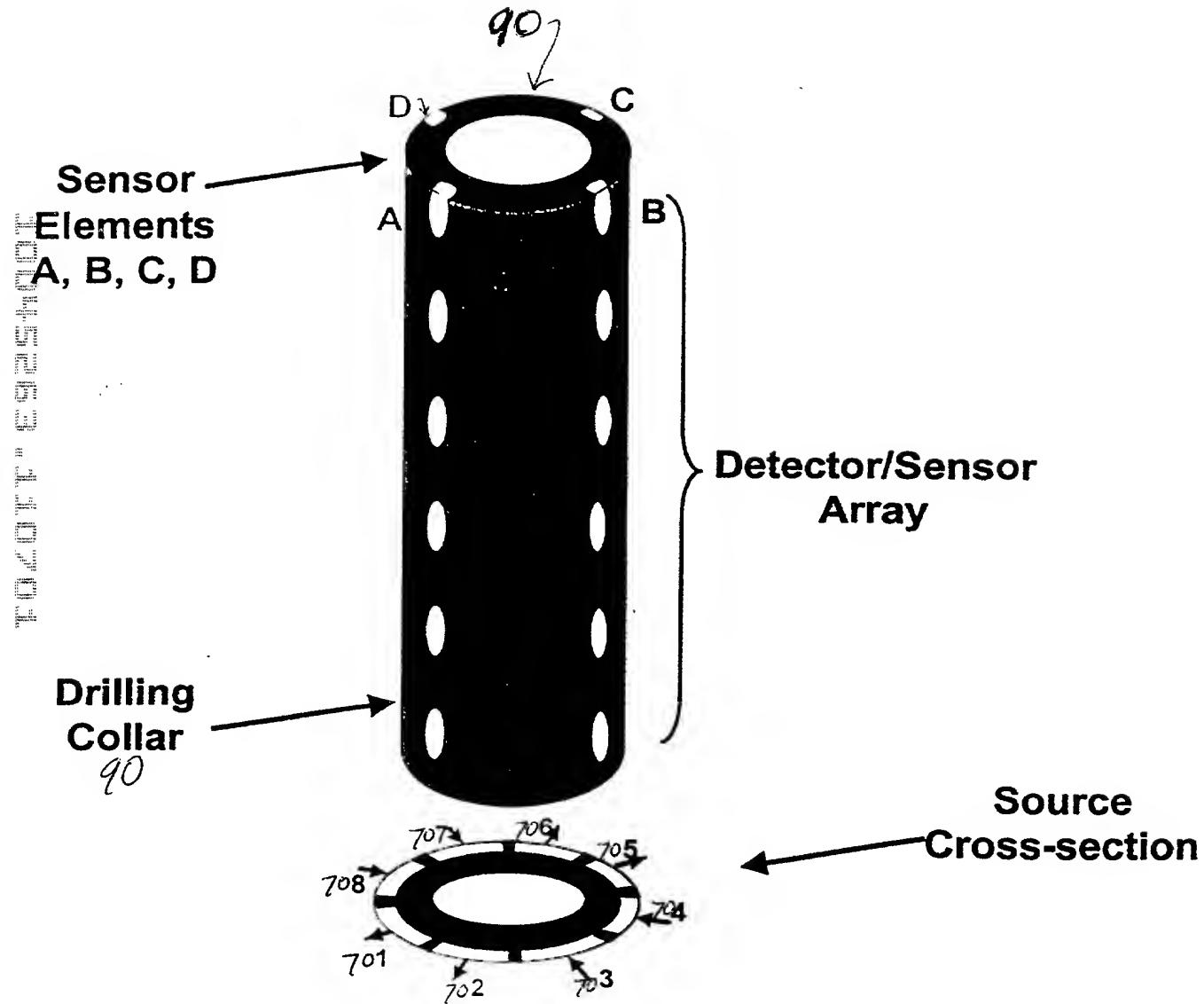


Figure 10 Sensor Array Layout

4.000000E-3 - 4.000000E-4

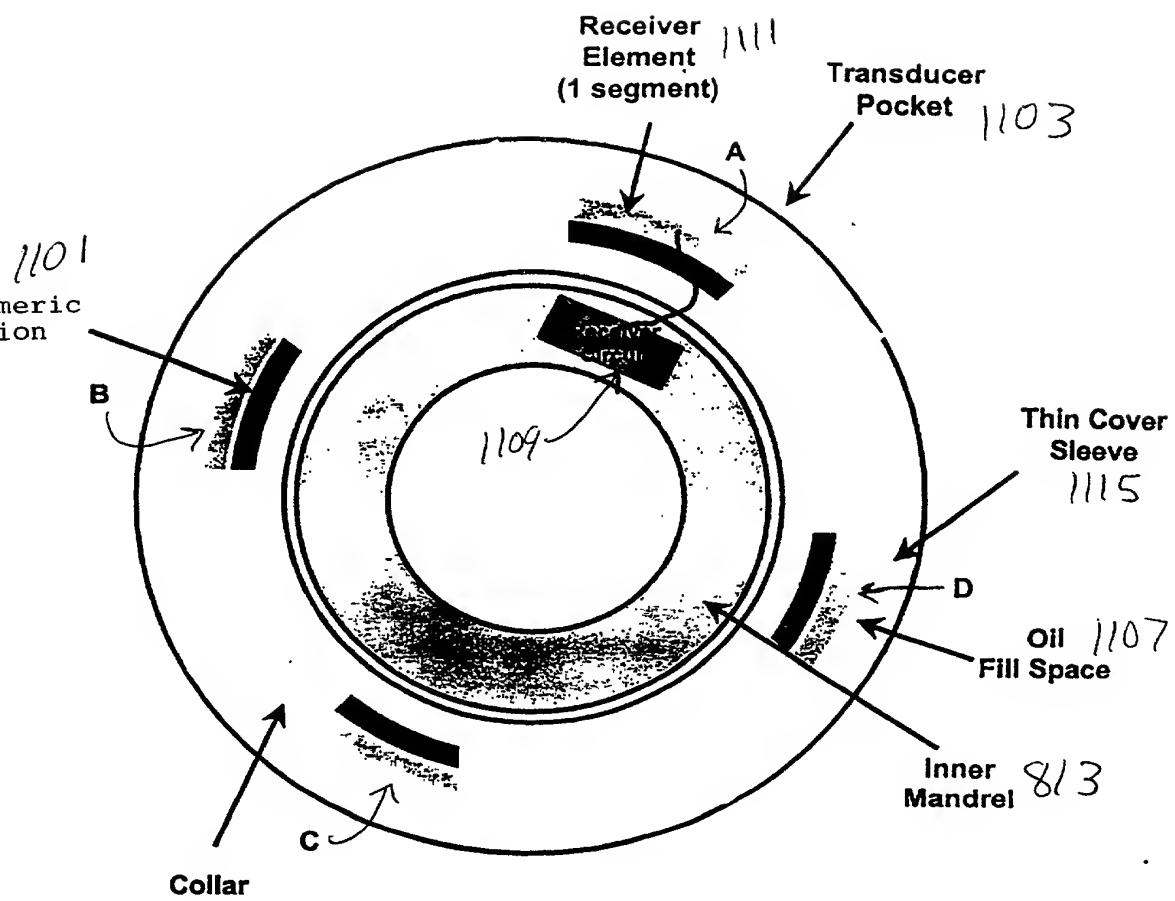


Figure 11 Segmented Ring Receiver Example

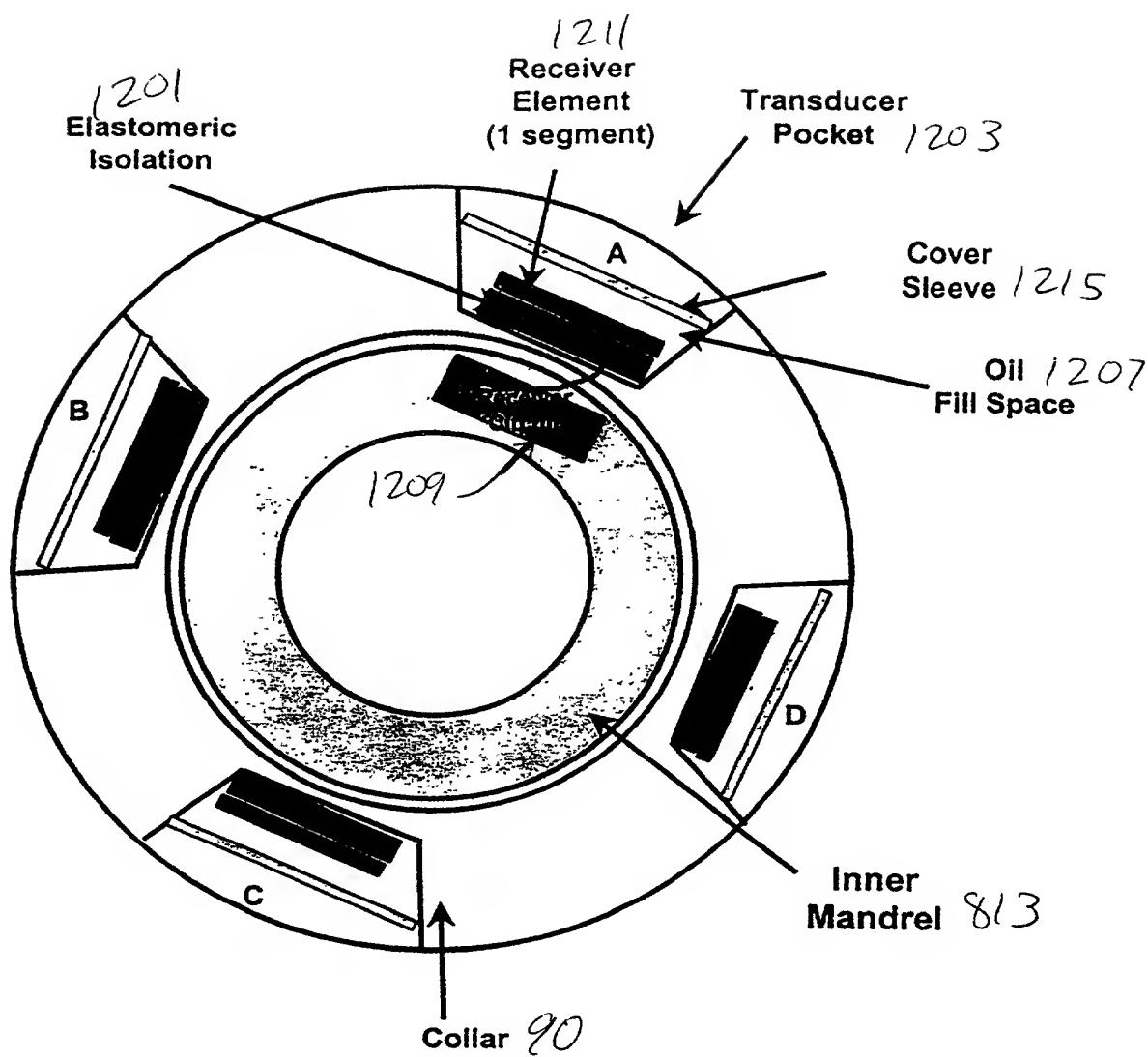


Figure 12 Individual Segmented Receiver Example

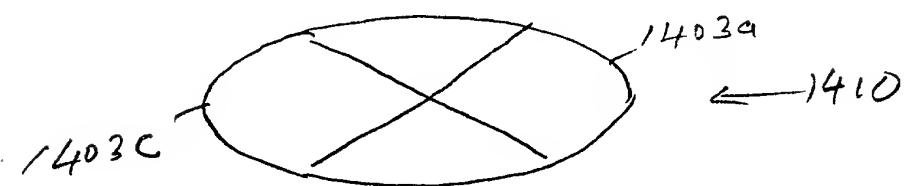
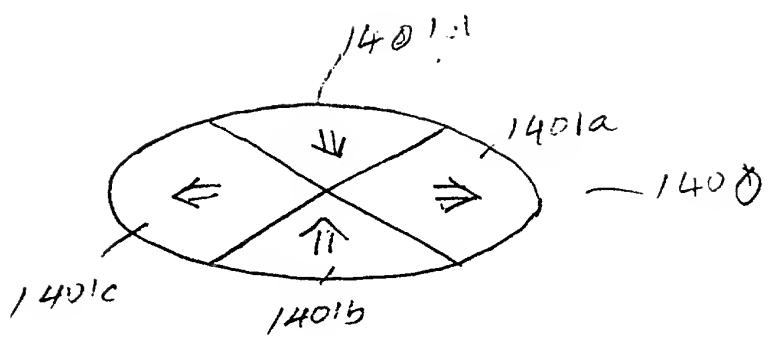


FIG. 13 a

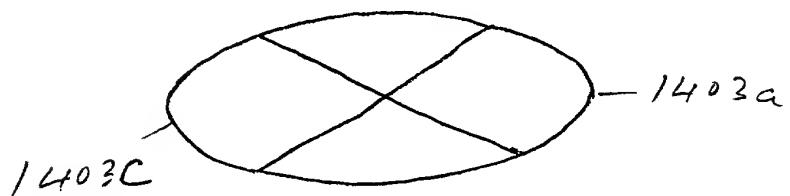
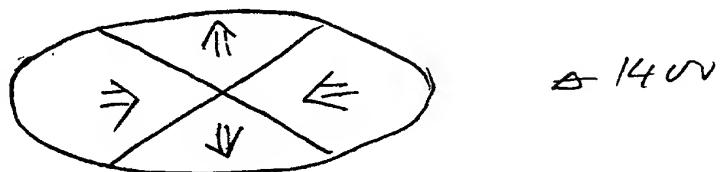


FIG. 13 b

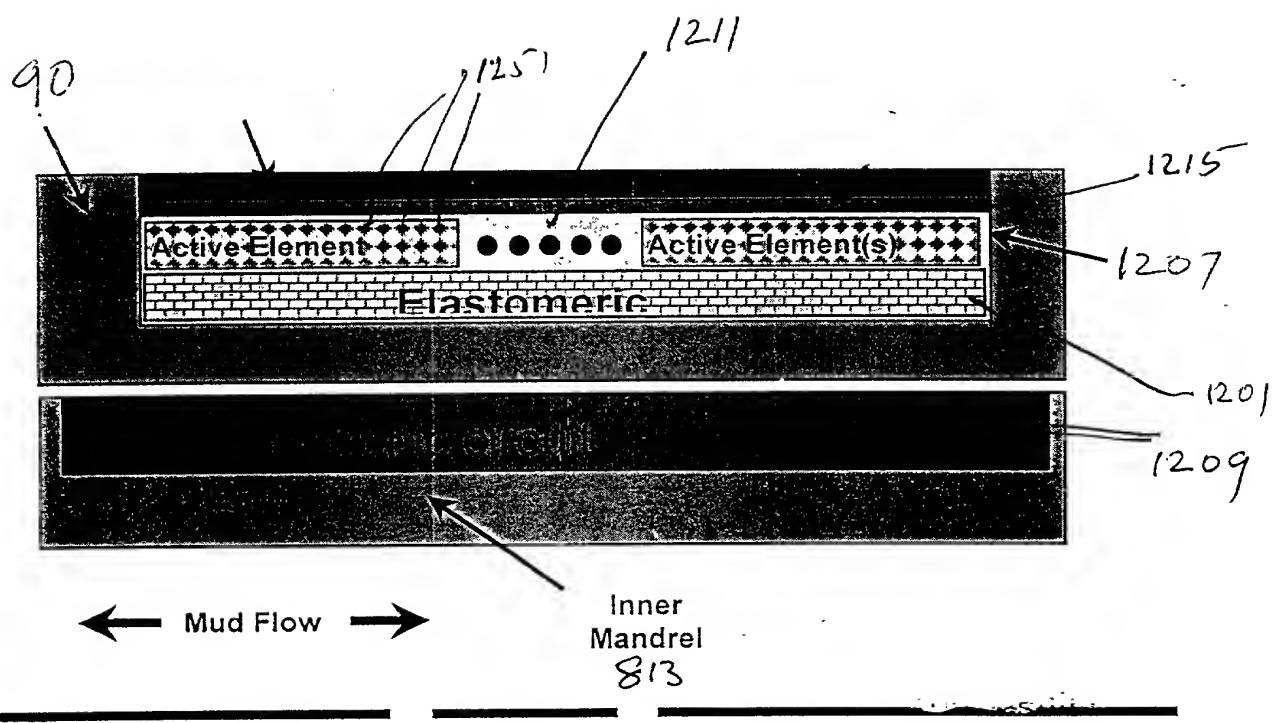


Fig. 14

Figure 15a

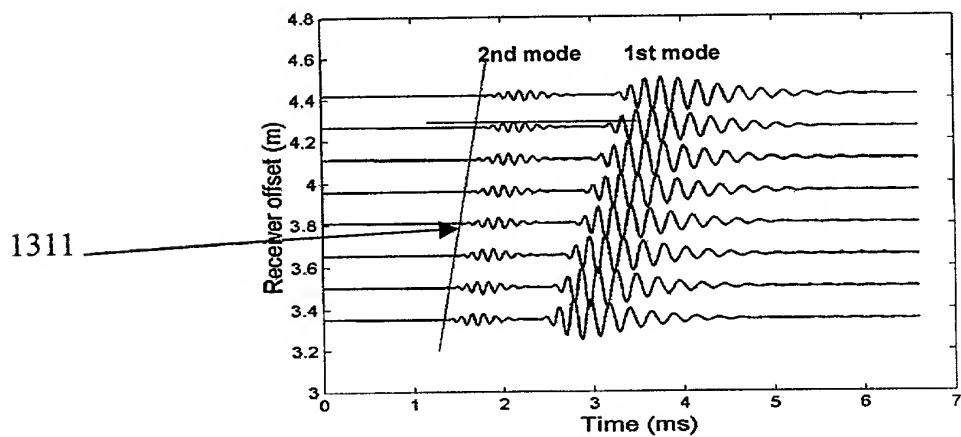
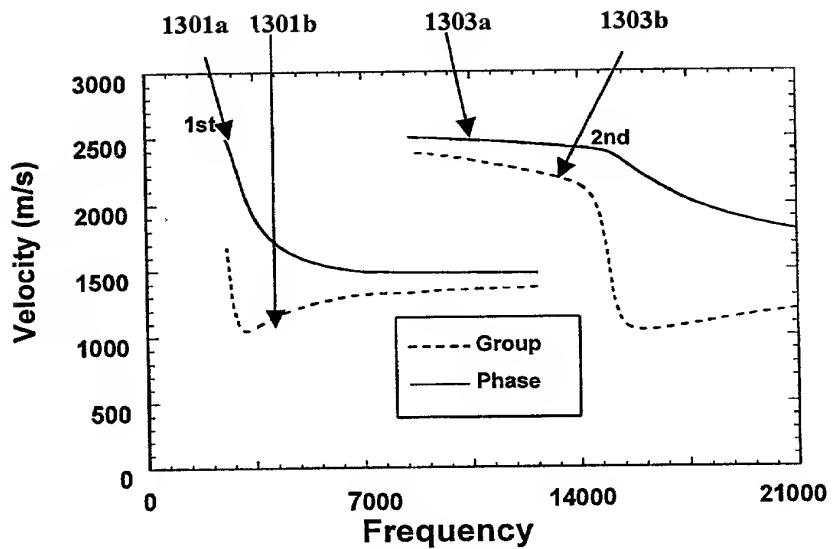


Figure 15b

A conceptual composition of a quadrupole source/receiver by two dipole sources/receivers.

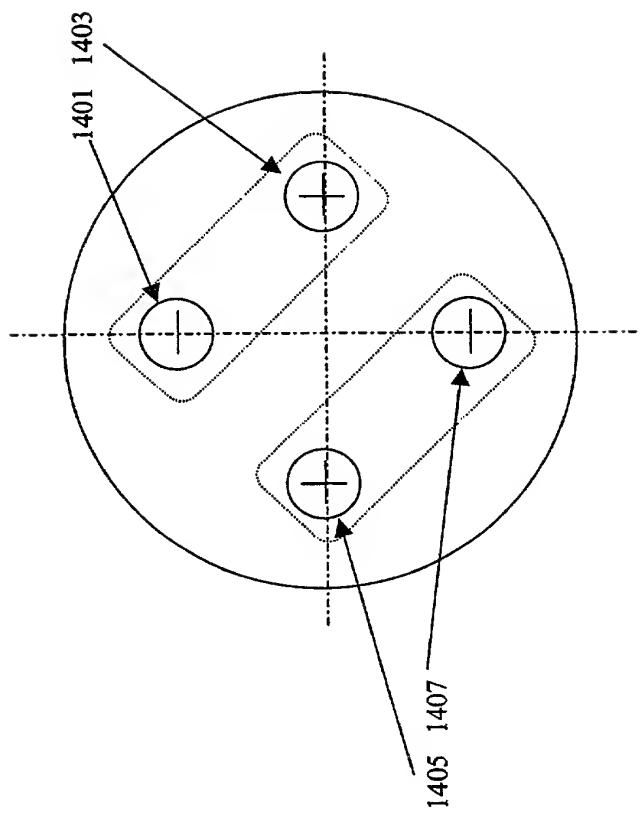


Figure 16